UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,622	09/11/2000	Henrik Sune Andersen	0776/1H462-US1	5060

7590 04/23/2003

Joseph R. Robinson
Darby & Darby
805 Third Avenue
New York, NY 10022

EXAMINER	
KRASS, FREDERICK F	
ART UNIT	PAPER NUMBER
1614	17

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/659,622	ANDERSEN ET AL.	
	Examiner	Art Unit	
	Frederick Krass	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *14,15,19,24 and 25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,16-18,20-23 and 26-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Election of Species Requirement

Applicant's election of the specific inhibitor "5-(5-methoxy-1,3-dioxo-1,3-dihydro-isoindol-2-ylmethyl)-2-oxalyl-amino)-4,7-dihydro-5H-thieno-[2,3-c]pyran-3-carboxylic acid" in Paper no. 15 is acknowleged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 14, 15, 19, 24 and 25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species.

Enablement Rejection

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-13, 16-18, 20-23 and 26-31 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the inhibition of PTPases by inhibitors having a carboxyl-substituted thienyl core and an oxalo side group, does not reasonably provide enablement for the use of inhibitors as broadly recited by purely functional characteristics, nor the treatment of unidentified pathologies, or broadly

recited pathologies such as "autoimmune diseases" and "cancers" therewith. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

1) the quantity of experimentation necessary,

2) the amount of direction or guidance provided,

3) the presence or absence of working examples,

4) the nature of the invention,

5) the state of the prior art,

6) the relative skill of those in the art,

7) the predictability of the art, and

8) the breadth of the claims.

The instant specification fails to provide guidance that would allow the skilled artisan to practice the instant invention without resorting to undue experimentation, as discussed in the subsections set forth hereinbelow.

1. The nature of the invention, state of the prior art, relative skill of those in the art, and the predictability of the art

The claimed invention relates to inhibiting PTPases, and methods for treating diseases associated therewith.

The relative skill of those in the art is generally that of a PHD candidate or PHD.

The unpredictability of the claimed subject matter is well understood in the art. The diseases to be treated by the instant methods include "autoimmune diseases" and "cancers" generally, and diabetes, effective treatments for all of which have eluded researchers for years. Applicant's own specification recognizes this and, rather than provide particular treatment regimens, instead generally speculates that the instant inhibitors will "serve as early development candidates, development candidates, or prototype drugs" for the treatment of such conditions (page 1, lines 19 et seq. of the instant specification).

2. The breadth of the claims

The claims are very broad and inclusive of any and all conditions treatable by the inhibition of PTPases.

3. The amount of direction or guidance provided and the presence or absence of working examples

The specification provides no direction for ascertaining which particular inhibitiors, known or to be discovered, can reasonably be expected, *a priori*, to inhibit PTPases, beyond the limited scope of compounds having a carboxyl-substituted thienyl core and an oxalo side group (those used in the instant working examples). Moreover, it is unclear which of those particular inhibitors could would be therapeutically effective against the numerous pathologies recited (see dependent claim 30, for example), which include such intractable conditions as autoimmune diseases and cancers.

The instant working examples (pages 299-307 of the instant specification) merely run generalized activity assays on a few select inhibitors (all having a carboxyl-substituted thienyl core and an oxalo side group) and predict that "a person skilled in the art will be able to use this knowledge to establish animal models that will reflect a human condition or disease in which a compound of the invention will be indicated".

4. The quantity of experimentation necessary

Applicant fails to provide guidance and information sufficient to allow the skilled artisan to ascertain which specific inhibitors, known or to be discovered, can be used to inhibit PTPases, and to treat diseases based upon that activity, without resorting to undue experimentation. The skilled artisan would expect the interactions of a particular inhbitor and enzyme to be very specific and highly unpredictable, and absent a reasonable *a priori* expectation of success for using a specific inhibitor to inhibit a specific PTPase, and the further use of that subset to treat a particular disease, one

skilled in the art would have to extensively test many various combinations of inhibitors, enzymes and diseases to discover success in each case. Since each prospective embodiment, and indeed future embodiments as the art progresses, would have to be empirically tested, and those which initially failed tested further, an undue amount of experimentation would be required to practice the invention as its is claimed in its current scope, because the specification provides inadequate guidance to do otherwise.

5. Related Case Law

The facts in this case demonstrate that, beyond the particular inhibitors of the working examples and closely related analogs thereof, all Applicants have is a "mere wish or plan" to uncover PTAase inhibitors which they currently do not have in their possession. See *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 1568 (Fed Cir. 1997).

Indefiniteness Rejection

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> **The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

Claims 1-3 and 28-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, third line, "the PTPase" lacks antecedent basis. (It should read --- said at least one PTPase ---)

Claim 2, third line, "comprisingexposing the PTPase" is confusing insofar as it is grammatically inconsistent/lacks antecedent basis, and should be changed to read --- comprising exposing said at least one PTPase ---

Claim 3, second line, "andother PTPase" is confusing insofar as it is grammatically inconsistent/lacks antecedent basis, and should be changed to read --- and other PTPase ---

Claim 28, there is no antecedent basis in claim 1 for "Formula I".

Anticipation Rejection

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-13, 16-18, 20-23 and 26-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Moller et al (USP 6,262,044).

The applied reference has at least one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The prior art discloses inhibitors for protein tyrosine phosphatases such as PTB1B, which specifically include the instantly elected species, 5-(5-methoxy-1,3-dioxo-1,3-dihydro-isoindol-2-ylmethyl)-2-oxalyl-amino)-4,7-dihydro-5H-thieno-[2,3-c]pyran-3-carboxylic acid (see column 31, lines 20-23) and closely related analogs (see working examples 26, 42 and 43). Given these discrete disclosures, no "picking and choosing" appears to be required to arrive at the instantly elected inhibitor and its use to inhibit PTB1B. Accordingly, since the same enzyme is being inhibited by the same inhibitor in both the prior art and the instant claims, all of the various functional limitations recited by the instant claims would be inherent in the prior art.

Obviousness-Type Double Patenting Rejection

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-13, 16-18, 20-23 and 26-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9 and 10 of U.S. Patent No. 6,262,044. Although the conflicting claims are not identical, they are not patentably distinct from each other because the prior art claims various inhibitors within the scope of the instant claims: see and compare claims 1 and 7 of the conflicting claims with instant claims 26 and 27, for example. Where the same inhibitors were used, it would have been obvious that the various functional characteristics recited instantly would be inherent to the conflicting inhibitors, motivated by the recognition that the same compounds are being used for the same end purpose (PTPase inhibition).

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick Krass whose telephone number is (703) 308-

4335. The examiner can normally be reached on Monday, Tuesday and Thursday from 9am to 5pm, and on Friday from 11am to 7pm. The examiner is off Wednesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marianne Seidel, can be reached at (703) 308-4725. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0193.

Frederick Krass
Primary Examiner
Art Unit 1614